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British Standards Institution
Report

No. 79—1919.

British Engineering Standards Association.

(*Incorporated 1918.*)

FORMED IN 1901 AS THE ENGINEERING STANDARDS COMMITTEE

BY

THE INSTITUTION OF CIVIL ENGINEERS.
THE INSTITUTION OF MECHANICAL ENGINEERS.
THE INSTITUTION OF NAVAL ARCHITECTS.
THE IRON AND STEEL INSTITUTE.
THE INSTITUTION OF ELECTRICAL ENGINEERS.

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REPORT

ON

BRITISH STANDARD

SPECIAL TRACKWORK FOR TRAMWAYS.

LONDON:
PUBLISHED FOR THE ASSOCIATION BY CROSBY LOCKWOOD & SON,
7, STATIONERS' HALL COURT, LUDGATE HILL, E.C. 4, AND 5, BROADWAY, LONDON, S.W. 1.,
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December, 1919.

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This Report was adopted by the Sectional Committee on Rails at their meeting on May 20th, 1919, and approved on behalf of the Main Committee on July 11th, 1919.

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REPORT

ON

BRITISH STANDARD

SPECIAL TRACKWORK FOR TRAMWAYS.

Nomenclature.

1. The nomenclature used for different classes of Special Trackwork for Tramways has hitherto been somewhat confused, and the Association has accordingly prepared diagrams illustrating practically every type of point, crossing, and layout used in actual practice, with suitable Standard titles. These diagrams are shown in Figs. 1 to 48 (Pages 7 to 18).

Crossings and Standard Method of Measuring Angles.

2. Considerable confusion has in the past arisen when only the angle and overall length of crossings have been specified, as no uniform method of measuring the angle or proportioning the respective lengths of the legs has been recognised. Table 1 (Page 20) shows the Standard now recommended in this respect; the lengths of legs given in the Table allow sufficient room for the insertion of the fishplates with their bolts. The grooves should be gradually raised to $\frac{1}{2}$ inch deep at intersection.

Switches.

3. Standard Lateral and Equilateral Switches are shown in Tables 2 and 3 (Pages 21 and 22) respectively. The overall lengths, distance between tangent line and toe of Switch, and offsets of the different Switches are shown for the different radii. The length of tongue and the maximum width of groove measured in the tongue recess are also given.

Crossovers and Turnouts.

4. Tables 4, 5 and 6 (Pages 23 to 34) show the Standard Crossovers and Lateral and Equilateral Turnouts, which would be built up from the Standard Switches and Crossings recommended in Tables 1, 2 and 3, as applied to the British Standard Rail Gauge of 4 ft. $8\frac{1}{2}$ ins.

Easement Curves.

5. The question of standardising Easement Curves has been most carefully considered, and the Association is of the opinion that the time has not yet arrived when a satisfactory series of spiral

curves can be recommended for universal adoption. The conditions of the roads in this country are such that in laying out Special Trackwork it is necessary almost constantly to modify Standard Easement Curves even when as many as four different Standards are used.

Holes for Bonding, Fishing, etc.

6. The Association considers that only external bonds should be used for Special Trackwork, and that the British Standard bond hole drilling is satisfactory.

The figures on Page 35 show the standard arrangement of holes for fishplates and bonding and for tie-bars when required. If joint plates are used the necessary holes can be cast in.

DIAGRAMS ILLUSTRATING

STANDARD NOMENCLATURE

OF

SPECIAL TRACKWORK FOR TRAMWAYS.

DIAGRAMS ILLUSTRATING

STANDARD NOMENCLATURE

OF

SPECIAL TRACKWORK FOR TRAMWAYS.

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BRITISH STANDARD
SPECIAL TRACKWORK FOR TRAMWAYS.
STANDARD NOMENCLATURE.

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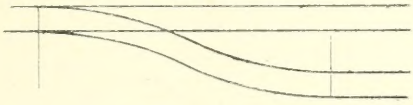
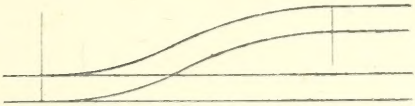


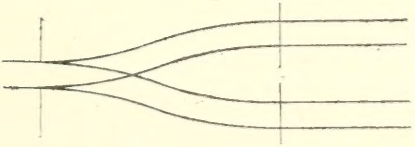
RIGHT HAND TURNOUT.

2



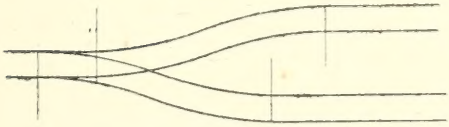
LEFT HAND TURNOUT.

3



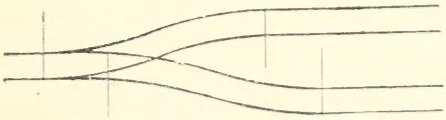
DIAMOND OR EQUILATERAL TURNOUT.

4



EQUILATERAL TURNOUT WITH STRAIGHT RUN-IN ON LEFT HAND.

5



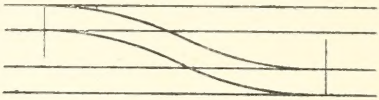
EQUILATERAL TURNOUT WITH STRAIGHT RUN-IN ON RIGHT HAND.

BRITISH STANDARD
SPECIAL TRACKWORK FOR TRAMWAYS.

STANDARD NOMENCLATURE.

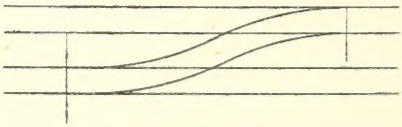
FIGURE

6



RIGHT HAND CROSSOVER.

7



LEFT HAND CROSSOVER.

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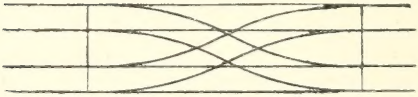
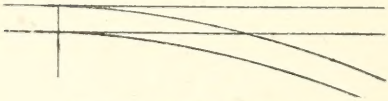


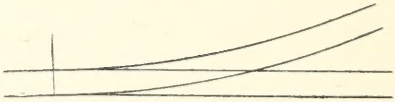
SCISSORS CROSSOVER.

9



SINGLE TRACK JUNCTION.
RIGHT HAND CURVE

10



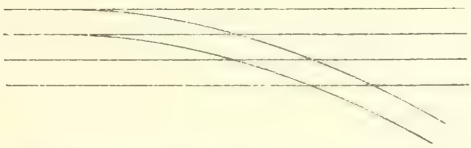
SINGLE TRACK JUNCTION,
LEFT HAND CURVE.

BRITISH STANDARD
SPECIAL TRACKWORK FOR TRAMWAYS.

STANDARD NOMENCLATURE.

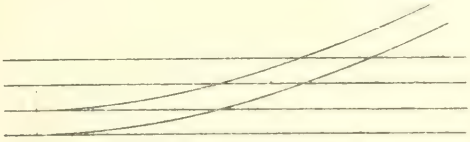
FIGURE

11



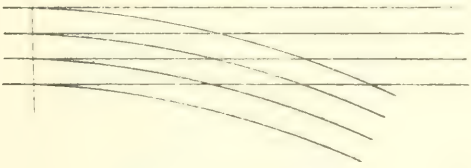
SINGLE TRACK OVER DOUBLE TRACK JUNCTION
RIGHT HAND CURVE.

12



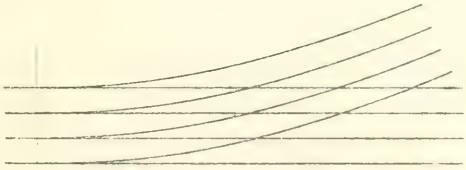
SINGLE TRACK OVER DOUBLE TRACK JUNCTION,
LEFT HAND CURVE.

13



DOUBLE TRACK JUNCTION,
RIGHT HAND CURVE.

14



DOUBLE TRACK JUNCTION,
LEFT HAND CURVE.

BRITISH STANDARD
SPECIAL TRACKWORK FOR TRAMWAYS.

STANDARD NOMENCLATURE.

FIGURE

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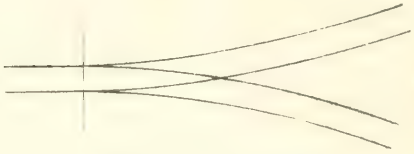
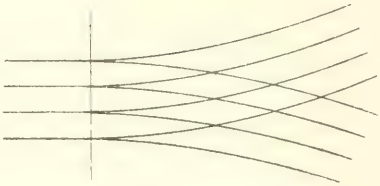


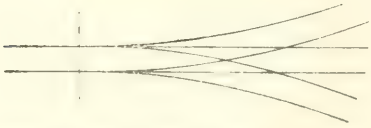
SINGLE TRACK JUNCTION,
EQUILATERAL CURVES.

16



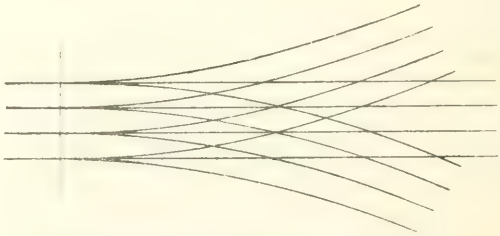
DOUBLE TRACK JUNCTION,
EQUILATERAL CURVES.

17



SINGLE TRACK EQUILATERAL JUNCTION,
WITH STRAIGHT RUN THROUGH.

18



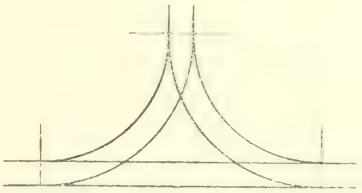
DOUBLE TRACK EQUILATERAL JUNCTION,
WITH STRAIGHT RUN THROUGH.

BRITISH STANDARD
SPECIAL TRACKWORK FOR TRAMWAYS.

STANDARD NOMENCLATURE.

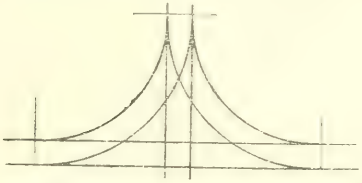
FIGURE

19



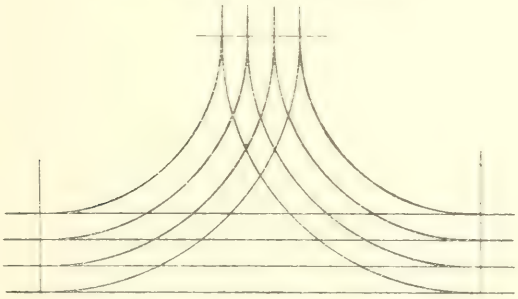
SINGLE TRACK TRIANGULAR JUNCTION.

20



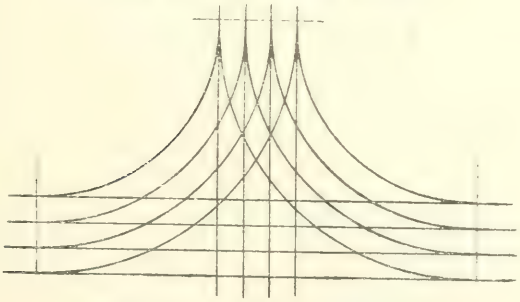
SINGLE TRACK TRIANGULAR JUNCTION,
WITH STRAIGHT RUN THROUGH.

21



DOUBLE TRACK TRIANGULAR JUNCTION.

22



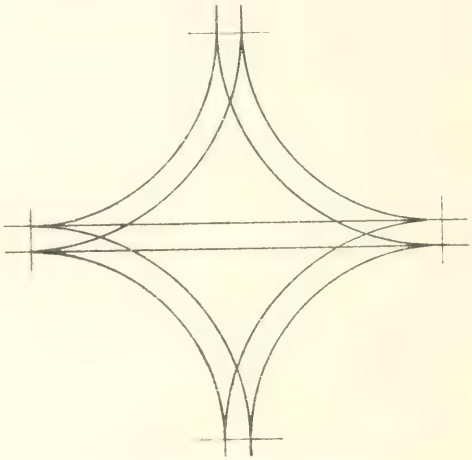
DOUBLE TRACK TRIANGULAR JUNCTION,
WITH STRAIGHT RUN THROUGH.

BRITISH STANDARD
SPECIAL TRACKWORK FOR TRAMWAYS.

STANDARD NOMENCLATURE.

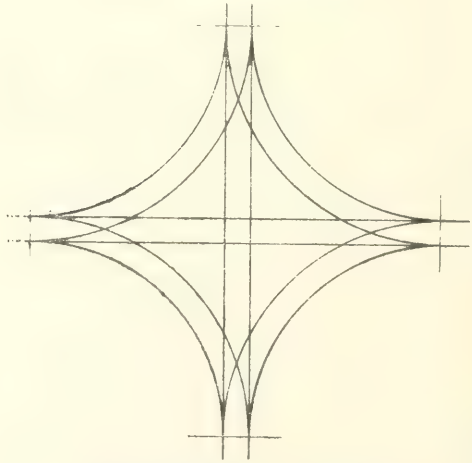
FIGURE

23



SINGLE TRACK 4-WAY JUNCTION,
ONE TRACK CARRIED THROUGH.

24



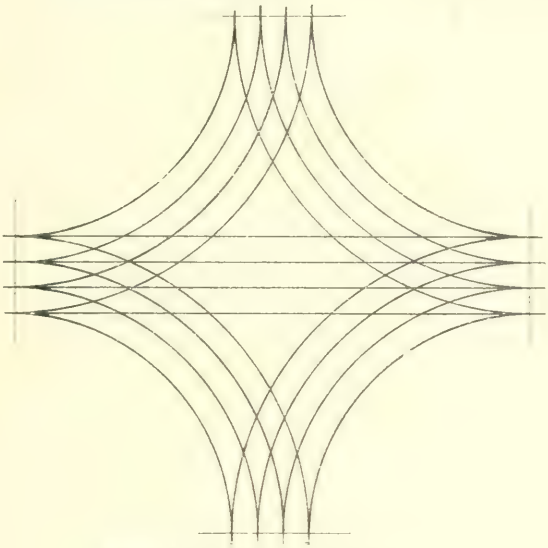
SINGLE TRACK 4-WAY JUNCTION,
BOTH TRACKS CARRIED THROUGH.

BRITISH STANDARD
SPECIAL TRACKWORK FOR TRAMWAYS.

STANDARD NOMENCLATURE.

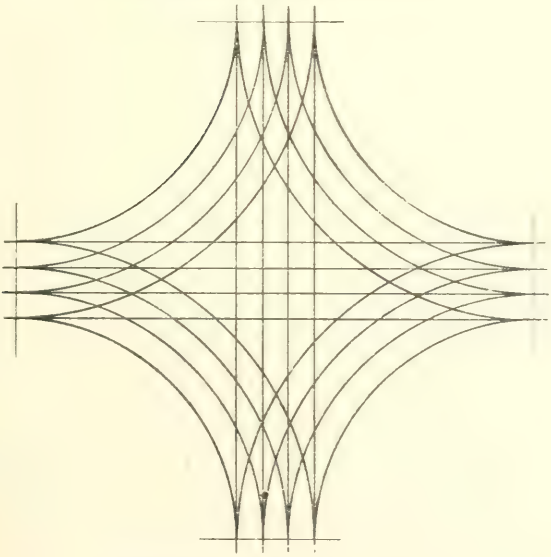
FIGURE

25



DOUBLE TRACK 4-WAY JUNCTION,
ONE TRACK CARRIED THROUGH.

26



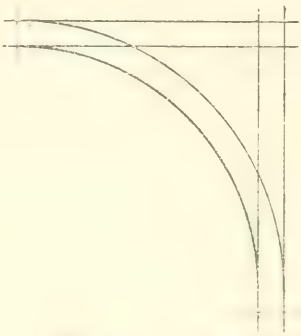
DOUBLE TRACK 4-WAY JUNCTION,
BOTH TRACKS CARRIED THROUGH.

BRITISH STANDARD
SPECIAL TRACKWORK FOR TRAMWAYS.

STANDARD NOMENCLATURE.

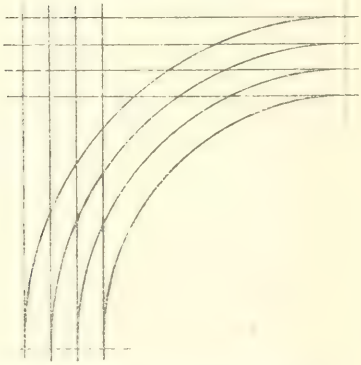
FIGURE

27



SINGLE TRACK CROSSING WITH CONNECTING CURVE.

28



DOUBLE TRACK CROSSING WITH CONNECTING CURVE.

29

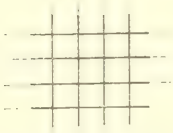
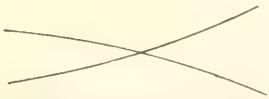
SINGLE STAR CROSSING.

30

SINGLE TRACK CROSSING.

BRITISH STANDARD
SPECIAL TRACKWORK FOR TRAMWAYS.

STANDARD NOMENCLATURE.

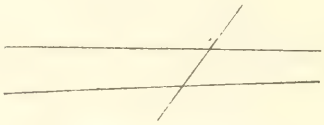
FIGURE	
31	SINGLE TRACK OVER DOUBLE TRACK CROSSING.
32	 DOUBLE TRACK CROSSING.
33	DIAMOND CROSSING.
34	SINGLE CURVED CROSSING.
35	 DOUBLE CURVED CROSSING.

BRITISH STANDARD
SPECIAL TRACKWORK FOR TRAMWAYS.

STANDARD NOMENCLATURE.

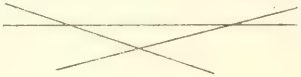
FIGURE

36



COMPOUND CROSSING.

37

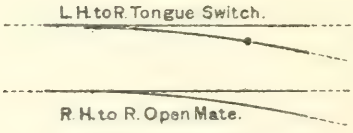


TRIPLE CROSSING.

38

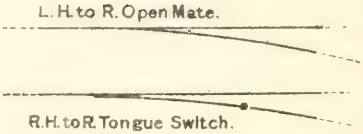
STRAIGHT CROSSING

39



RIGHT HAND CURVE POINTS.

40



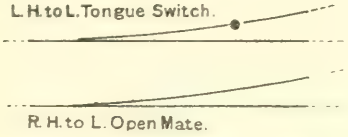
RIGHT HAND CURVE POINTS.

BRITISH STANDARD
SPECIAL TRACKWORK FOR TRAMWAYS.

STANDARD NOMENCLATURE.

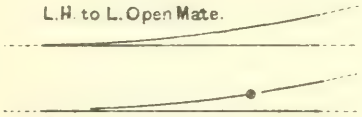
FIGURE

41



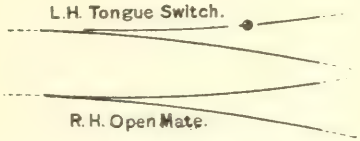
LEFT HAND CURVE POINTS.

42



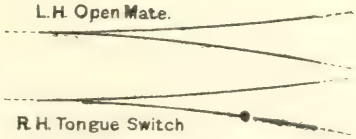
LEFT HAND CURVE POINTS.

43



EQUILATERAL POINTS.

44



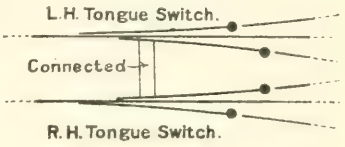
EQUILATERAL POINTS.

BRITISH STANDARD
SPECIAL TRACKWORK FOR TRAMWAYS.

STANDARD NOMENCLATURE.

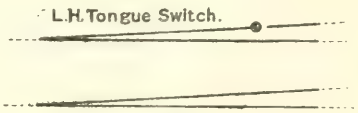
FIGURE

45



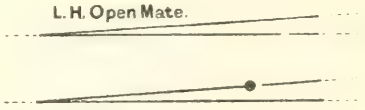
EQUILATERAL THREE-WAY POINTS.

46



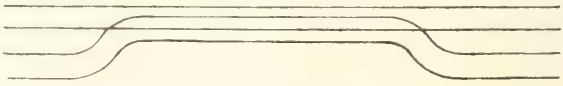
STRAIGHT POINTS.

47



STRAIGHT POINTS.

48



INTERLACING TRACKS.

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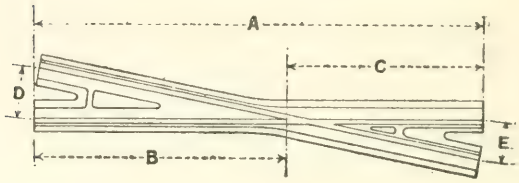
PLATES.

Plate 1. British Standard Arrangement of Holing in Switches and Crossings for B.S. Rails $6\frac{1}{2}$ and 7 ins. deep 35

Plate 2. British Standard Arrangement of Holing in Switches and Crossings for B.S. Rails $5\frac{1}{4}$ ins. deep 36

TABLE 1.

BRITISH STANDARD CROSSINGS.



1	2	3	4	5	6
Angle.	Overall Length of Crossing.	Length from Heel to Intersection.	Length from Toe to Intersection.	Opening at Heel.	Opening at Toe.
	A	B	C	D	E
1 in 4 14° 22′	ft. ins. 7 0	ft. ins. 4 0	ft. ins. 3 0	ft. ins. 1 0	ins. 9
1 in 4½ 12° 46′	7 6	4 3	3 3	0 11 $\frac{11}{32}$	8 $\frac{13}{64}$
1 in 5 11° 29′	8 0	4 6	3 6	0 10 $\frac{13}{16}$	8 $\frac{13}{32}$
1 in 5½ 10° 26′	8 6	4 9	3 9	0 10 $\frac{23}{64}$	8 $\frac{3}{16}$
1 in 6 9° 34′	9 0	5 0	4 0	0 10	8
1 in 6½ 8° 49′	9 6	5 6	4 0	0 10 $\frac{9}{64}$	7 $\frac{7}{8}$
1 in 7 8° 12′	10 0	5 9	4 3	0 9 $\frac{55}{64}$	7 $\frac{19}{64}$
1 in 7½ 7° 39′	10 6	6 0	4 6	0 9 $\frac{39}{64}$	7 $\frac{13}{64}$
1 in 8 7° 10′	11 0	6 3	4 9	0 9 $\frac{3}{8}$	7 $\frac{1}{8}$

All Dimensions taken to and from Gauge Lines.
Grooves to be gradually raised to $\frac{1}{2}$ inch deep at intersection.

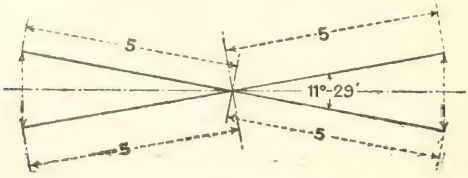
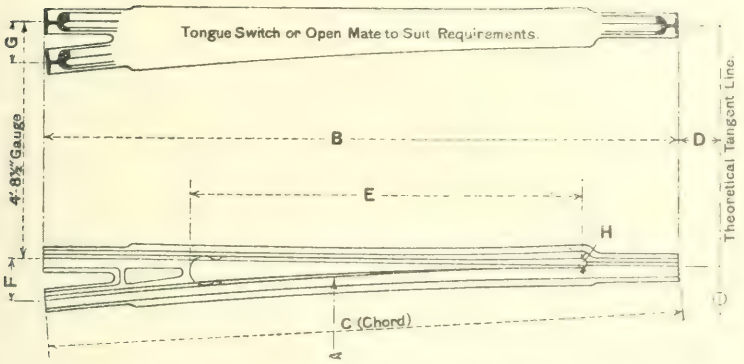


Diagram of 1 in 5 Crossing showing method of Measuring Angles.

TABLE 2.

BRITISH STANDARD LATERAL SWITCHES.



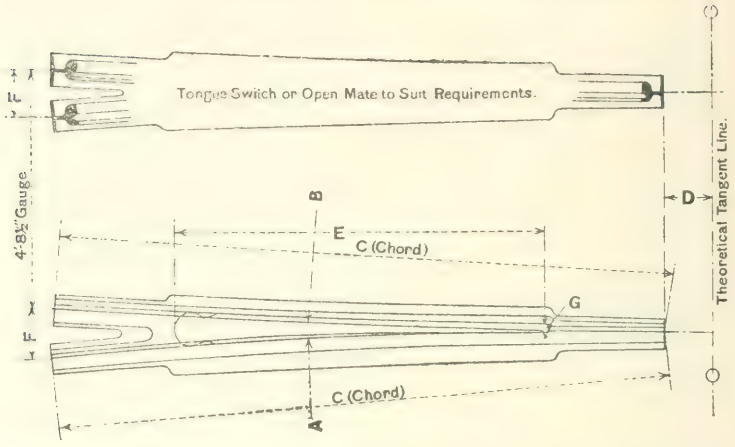
1	2	3	4	5	6	7	8
Radius of Switch.	Overall Length of Switch.		Distance between Tangent Line and Toe of Switch.	Length of Tongue.	Offset on Inner Switch.	Offset on Outer Switch.	Maximum Width of Groove measured in Tongue Recess.
A	B	C	D	E	F	G	H
ft.	ft. ins.	ft. ins.	ft. ins.	ft. ins.	ins.	ins.	ins.
75	10 6	10 5 11/16	—	6 6	5 7/8	5 21/64	1 1/2
100	12 0	11 11 3/4	—	7 6	8 43/64	8 9/32	1 1/2
150	12 6	12 5 7/8	1 0	7 6	7 3/16	7 5/64	1 1/2
200	13 6	13 5 7/8	1 6	9 0	6 3/4	6 39/64	1 1/2
250	15 0	14 11 7/8	1 6	10 0	6 35/64	6 27/64	1 1/2
300	15 6	15 5 7/8	2 0	10 0	6 1/8	6 1/32	1 1/2

All Dimensions taken to and from Gauge Lines.

Grooves in open mate to be gradually raised to $\frac{1}{2}$ inch deep at nose.

TABLE 3.

BRITISH STANDARD EQUILATERAL SWITCHES.



1	2	3	4	5	6	7
Inner Radius of Switch.	Outer Radius of Switch.	Overall Length of Switch.	Distance between Tangent Line and Toe of Switch.	Length of Tongue.	Offset.	Maximum Width of Groove measured in Tongue Recess.
A	B	C	D	E	F	G
ft.	ft. ins.	ft. ins.	ft. ins.	ft. ins.	ft. ins.	ins.
100	104 8½	10 6	—	6 6	1 0 15/16	1½
150	154 8½	10 6	—	6 6	0 8 11/16	1½
200	204 8½	12 0	—	7 6	0 8 35/64	1½
250	254 8½	12 0	0 6	7 6	0 7 7/16	1½
300	304 8½	12 6	1 0	8 0	0 7 15/64	1½
350	354 8½	13 0	1 6	8 6	0 7 5/32	1½
400	404 8½	13 6	1 6	9 0	0 6 23/32	1½

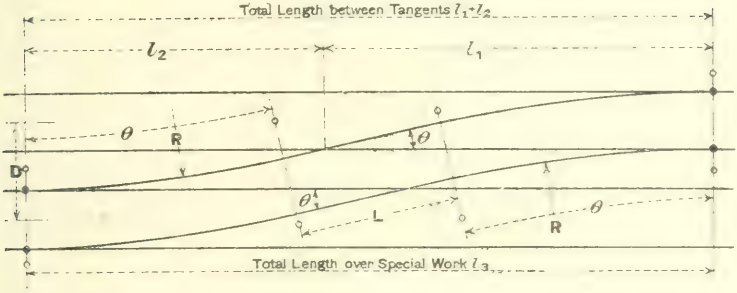
All Dimensions taken to and from Gauge Lines.

Grooves in open mate to be gradually raised to ½ inch deep at nose.

TABLE 4.

BRITISH STANDARD CROSSOVERS.

4 FT. 8½ INS. GAUGE.

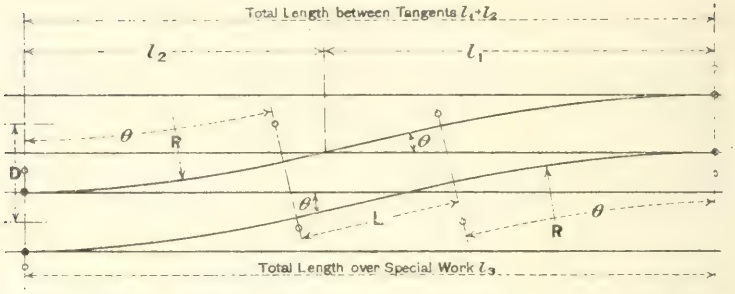


1	2	3	4	5	6	7	8	9
Radius of Switch.	Angle of Crossing.	Lead of Crossing.	Distance between Centres of Tracks.		Total Length over Special Work.	Variation of l_2 and l_3 for each inch in Width **D**.	Length of Straight through Crossing.	Variation of **L** for each inch in Width **D**.
R	θ	l_1	**D**	l_2	l_3		**L**	
ft.		ft.	ft. ins.	ft.	ft.	ins.	ft.	ins.
			8 0	22·3039	50·7318		12·7432	
			8 6	24·2560	52·6839		14·7583	
75	1 in 4 14° 22′	28·4279	9 0	26·2081	54·6360	3·9042	16·7734	4·0302
			9 6	28·1602	56·5881		18·7885	
			10 0	30·1123	58·5402		20·8036	
			8 0	22·9181	52·6149		18·8945	
			8 6	25·1248	54·8216		21·1571	
75	1 in 4½ 12° 46′	29·6968	9 0	27·3315	57·0283	4·4134	23·4198	4·5253
			9 6	29·5382	59·2350		25·6824	
			10 0	31·7449	61·4417		27·9451	
			8 0	23·7443	54·9353		24·6287	
			8 6	26·2055	57·3965		27·1402	
75	1 in 5 11 29	31·1910	9 0	28·6668	59·8578	4·9225	29·6517	5·0230
			9 6	31·1280	62·3190		32·1632	
			10 0	33·5893	64·7803		34·6747	
			8 0	24·7240	57·5711		30·0517	
			8 6	27·4394	60·2865		32·8127	
75	1 in 5½ 10° 26′	32·8471	9 0	30·1548	63·0019	5·4308	35·5738	5·5221
			9 6	32·8702	65·7173		38·3348	
			10 0	35·5856	68·4327		41·0959	
			8 0	25·8068	60·4127		35·1903	
			8 6	28·7734	63·3793		38·1988	
75	1 in 6 9 34′	34·6059	9 0	31·7401	66·3460	5·9333	41·2073	6·0170
			9 6	34·7067	69·3126		44·2158	
			10 0	37·6734	72·2793		47·2243	

TABLE 4
(continued).

BRITISH STANDARD CROSSOVERS.

4 FT. 8 ½ INS. GAUGE.

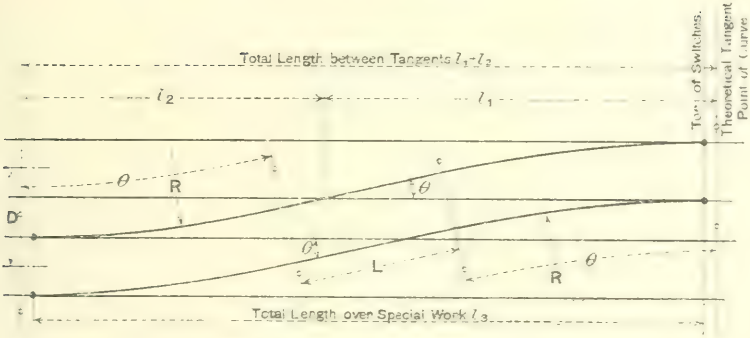


1	2	3	4	5	6	7	8	9
Radius of Switch.	Angle of Crossing.	Lead of Crossing.	Distance between Centres of Tracks.		Total Length over Special Work.	Variation of l_2 and l_3 for each inch in Width **D.**	Length of Straight through Crossing.	Variation of **L** for each inch in Width **D.**
R	θ	l_1	**D**	l_2	l_3		**L**	
ft.		ft.	ft. ins.	ft.	ft.	ins.	ft.	ins.
100	1 in 4 14° 22′	31·5788	9 0	29·3589	60·9377	3·9042	10·4716	4·0302
			9 6	31·3110	62·8898		12·4867	
			10 0	33·2631	64·8419		14·5018	
100	1 in 4 ½ 12° 46′	32·4937	8 0	25·7149	58·2086	4·4134	13·3008	4·5253
			8 6	27·9216	60·4153		15·5334	
			9 0	30·1283	62·6220		17·8261	
			9 6	32·3350	64·8287		20·0887	
			10 0	34·5417	67·0354		22·3514	
100	1 in 5 11° 29′	33·7047	8 0	26·2581	59·9628	4·9225	19·6013	5·0230
			8 6	28·7194	62·4241		22·1128	
			9 0	31·1806	64·8853		24·6243	
			9 6	33·6419	67·3466		27·1358	
			10 0	36·1031	69·8078		29·6473	
100	1 in 5 ½ 10° 26′	35·1296	8 0	27·0066	62·1362	5·4308	25·4866	5·5221
			8 6	29·7220	64·8516		28·2477	
			9 0	32·4374	67·5670		31·0087	
			9 6	35·1528	70·2824		33·7698	
			10 0	37·8682	72·9978		36·5308	
100	1 in 6 9° 34′	36·6979	8 0	27·8988	64·5967	5·9333	31·0063	6·0170
			8 6	30·8655	67·5634		34·0148	
			9 0	33·8321	70·5300		37·0233	
			9 6	36·7988	73·4967		40·0318	
			10 0	39·7654	76·4633		43·0403	

TABLE 4
(continued).

BRITISH STANDARD CROSSOVERS.

4 FT. 8½ INS. GAUGE.

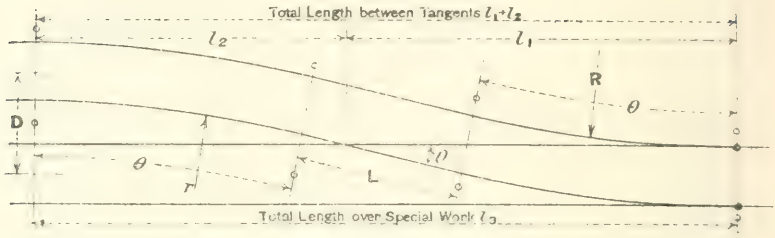


1	2	3	4	5	6	7	8	9
Radius of Switch.	Angle of Crossing.	Lead of Crossing.	Distance between Centres of Tracks		Total Length over Special Work.	Variation of l_2 and l_3 for each inch in Width **D**.	Length of Straight through Crossing.	Variation of **L** for each inch in Width **D**.
R	θ	l_1	**D**	l_2	l_3		**L**	
ft.		ft.	ft. ins.	ft.	ft.	ins.	ft	ins.
150	1 in 4½ 12° 46′	38·0871	9 0	37·9289	74·0162	4·4134	8·9013	4·5253
150	1 in 5 11° 29′	38·7121	8 6	33·7468	70·4789	4·9225	12·0581	5·0240
			9 0	36·2080	72·9401		14·5596	
			9 6	38·6693	75·4014		17·0211	
			10 0	41·1305	77·8626		19·5926	
150	1 in 5½ 10° 26′	39·6946	8 0	31·5715	69·2661	5·4308	16·3566	5·5221
			8 6	34·2869	71·9815		19·1177	
			9 0	37·0023	74·6969		21·8787	
			9 6	39·7177	77·4123		24·6398	
			10 0	42·4331	80·1277		27·4008	
150	1 in 6 9° 34′	40·8819	8 0	32·1827	70·8646	5·9333	22·4384	6·0170
			8 6	34·9444	73·6315		25·6469	
			9 0	38·0160	76·8979		28·6554	
			9 6	40·9827	79·8646		31·6639	
			10 0	43·9493	82·8312		34·6724	
150	1 in 6½ 8° 43′	42·2822	8 0	32·7860	75·0682	6·4472	28·7037	6·5243
			8 6	36·0096	76·2918		31·9659	
			9 0	39·2332	79·5154		35·2280	
			9 6	42·4568	82·7390		38·4902	
			10 0	45·6804	85·9626		41·7523	

TABLE 5.

BRITISH STANDARD LATERAL TURNOUTS.

4 FT. 8½ INS. GAUGE.

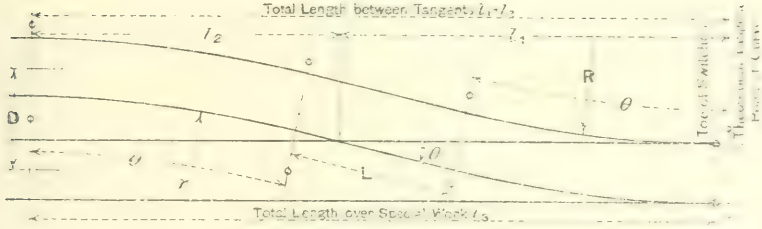


1	2	3	4	5	6	7	8	9	10
Radius of Switch.	Angle of Crossing.	Lead of Crossing.	Radius of Plain End.	Distance between Centres of Tracks.	Lead of Plain End.	Total Length over Special Work.	Variation of l_2 and l_3 for each inch in Width **D**.	Length of Straight through Crossing.	Variation of **L** for each inch in Width **D**.
R	θ	l_1	r	**D**	l_2	l_3		**L**	
ft.		ft.	ft.	ft. ins.	ft.	ft.	ins.	ft.	ins.
			100	8 0	26·2581	59·9628		19·6013	
	1 in 5			8 6	33·7468	67·4515		17·0854	
100		33·7047	150	9 0	36·2080	69·9127	4·9225	19·5969	5·0230
	11° 29′			9 6	38·6693	72·3740		22·1084	
				10 0	41·1305	74·8352		24·6199	
				8 0	31·5715	66·7011		20·9217	
	1 in 5½			8 6	34·2869	69·4165		23·6828	
100		35·1296	150	9 0	37·0023	72·1319	5·4308	26·4438	5·5221
	10° 26′			9 6	39·7177	74·8473		29·2049	
				10 0	42·4331	77·5627		31·9659	
				8 0	32·0827	68·7806		26·8224	
	1 in 6			8 6	35·0494	71·7473		29·8309	
100		36·6979	150	9 0	38·0160	74·7139	5·9333	32·8394	6·0170
	9° 34′			9 6	40·9827	77·6806		35·8479	
				10 0	43·9493	80·6472		38·8564	
				8 0	32·7860	71·2136		32·5583	
	1 in 6½			8 6	36·0096	74·4372		35·8204	
100		38·4276	150	9 0	39·2332	77·6608	6·4472	39·0826	6·5243
	8° 49′			9 6	42·4568	80·8844		42·3447	
				10 0	45·6804	84·1080		45·6069	
				8 0	33·5949	73·7738		37·8319	
	1 in 7			8 6	37·0646	77·2435		41·3375	
100		40·1789	150	9 0	40·5344	80·7133	6·9395	44·8431	7·0112
	8° 12′			9 6	44·0041	84·1830		48·3487	
				10 0	47·4739	87·6528		51·8543	
				8 0	34·5357	76·5900		43·0662	
	1 in 7½			8 6	38·2582	80·3125		46·8221	
100		42·0543	150	9 0	41·9808	84·0351	7·4451	50·5781	7·5119
	7° 39′			9 6	45·7033	87·7576		54·3340	
				10 0	49·4259	91·4802		58·0900	
				8 0	35·5723	79·5746		48·1747	
	1 in 8			8 6	39·5488	83·5511		52·1825	
100		44·0023	150	9 0	43·5253	87·5276	7·9530	56·1903	8·0156
	7° 10′			9 6	47·5018	91·5041		60·1981	
				10 0	51·4783	95·4806		64·2059	

TABLE 5
continued

BRITISH STANDARD LATERAL TURNOUTS.

4 FT. 8½ INS. GAUGE.

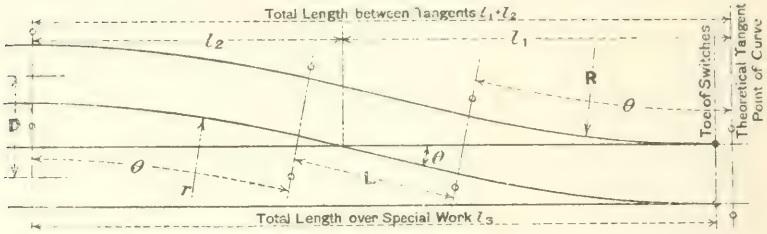


1	2	3	4	5	6	7	8	9	10
Radius of Switch.	Angle of Crossing.	Lead of Crossing.	Radius of Plain End.	Distance between Centres of Tracks.	Lead of Plain End.	Total Length over Special Work.	Variation of l_2 and l_3 for each inch in Width D.	Length of Straight through Crossing.	Variation of L for each inch in Width D.
R	θ	l_1	r	D	l_2	l_3		L	
ft.		ft.	ft.	ft. ins.	ft.	ft	ins.	ft.	ins.
150	1 in 8 11° 29′	38·7321	150	8 6	33·7468	71·4789	4·9225	12·0581	5·0230
				9 0	36·2080	73·9401		14·5696	
				9 6	38·6693	76·4014		17·0811	
				10 0	41·1305	78·8626		19·5926	
150	1 in 8½ 10° 26′	39·6946	150 200	8 0	31·5715	70·2661	5·4308	16·3566	5·5221
				8 6	34·2869	72·9815		19·1177	
				9 0	41·5673	80·2619		17·3137	
				9 6	44·2827	82·9773		20·0747	
				10 0	46·9981	85·6927		22·8358	
150	1 in 8 9° 34′	40·8819	200	8 6	39·2333	79·1152	5·4431	21·4629	5·5270
				9 0	42·2000	82·0819		24·4714	
				9 6	45·1666	85·0485		27·4799	
				10 0	48·1333	88·0152		30·4884	
150	1 in 8½ 8° 49′	42·2822	200	8 0	36·6405	77·9227	6·4472	24·8491	6·5243
				8 6	39·8641	81·1463		28·1112	
				9 0	43·0877	84·3699		31·3734	
				9 6	46·3113	87·5935		34·6355	
				10 0	49·5349	90·8171		37·8977	
150	1 in 7 8° 12′	43·7629	200	8 0	37·1790	79·9419	6·4379	30·6638	7·0112
				8 6	40·6488	83·4117		34·1694	
				9 0	44·1185	86·8814		37·6750	
				9 6	47·5883	90·3512		41·1806	
				10 0	51·0580	93·8209		44·6862	
150	1 in 7½ 7° 39′	45·3972	200	8 0	37·8785	82·2757	7·4451	36·3804	7·5119
				8 6	41·6010	85·9982		40·1363	
				9 0	45·3236	89·7208		43·8923	
				9 6	49·0461	93·4433		47·6482	
				10 0	52·7687	97·1659		51·4042	
150	1 in 8 7° 10′	47·1334	200	8 0	38·7035	84·8369	7·4526	41·9125	7·5180
				8 6	42·6800	88·8134		45·9203	
				9 0	46·6565	92·7899		49·9281	
				9 6	50·6330	96·7664		53·9359	
				10 0	54·6095	100·7429		57·9437	

TABLE 5
(continued).

BRITISH STANDARD LATERAL TURNOUTS.

4 FT. 8½ INS. GAUGE.

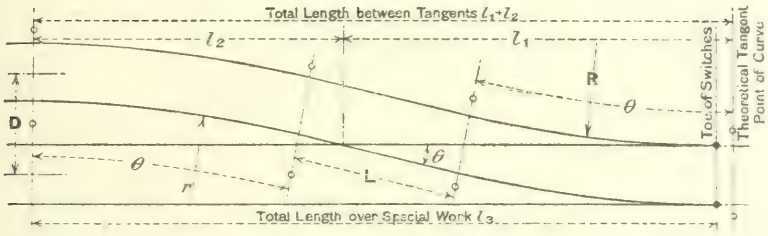


1	2	3	4	5	6	7	8	9	10
Radius of Switch.	Angle of Crossing.	Lead of Crossing.	Radius of Plain End.	Distance between Centres of Tracks.	Lead of Plain End.	Total Length over Special Work.	Variation of l_2 and l_3 for each inch in Width **D**.	Length of Straight through Crossing.	Variation **L** for each inch in Width **D**.
R	θ	l_1	r	**D**	l_2	l_3		**L**	
ft.		ft.	ft.	ft. ins.	ft.	ft.	ins.	ft.	ins.
200	1 in 5½ 10° 26′	44·2598	200	9 0	41·5673	84·3271	5·4308	12·7487	5·5221
				9 6	44·2827	87·0425		15·5097	
				10 0	46·9981	89·7579		18·2708	
200	1 in 6 9° 34′	45·0659	200	8 6	39·2333	82·7992	5·9333	17·2789	6·0170
				9 0	42·2000	85·7659		20·2874	
				9 6	45·1666	88·7325		23·2959	
				10 0	48·1333	91·6992		26·3044	
200	1 in 6½ 8° 49′	46·1369	200	8 0	36·6405	81·2774	6·4472	20·9946	6·5243
				8 6	39·8641	84·5010		24·2567	
				9 0	43·0877	87·7246		27·5189	
				9 6	46·3113	90·9482		30·7810	
				10 0	49·5349	94·1718		34·0432	
200	1 in 7 8° 12′	47·3471	200	8 0	37·1790	83·0261	6·9395	27·0797	7·0112
				8 6	40·6488	86·4959		30·5853	
				9 0	44·1185	89·9656		34·0909	
				9 6	47·5883	93·4354		37·5965	
				10 0	51·0580	96·9051		41·1021	
200	1 in 7½ 7° 39′	48·7402	200	8 0	37·8785	85·1187	7·4451	33·0375	7·5119
				8 6	41·6010	88·8412		36·7935	
				9 0	45·3236	92·5638		40·5494	
				9 6	49·0461	96·2863		44·3054	
				10 0	52·7687	100·0089		48·0613	
200	1 in 8 7° 10′	50·2647	200	8 0	38·7035	87·4682	7·9530	38·7812	8·0156
				8 6	42·6800	91·4447		42·7890	
				9 0	46·6565	95·4212		46·7968	
				9 6	50·6330	99·3977		50·8046	
				10 0	54·6095	103·3742		54·8124	

TABLE 5
(continued).

BRITISH STANDARD LATERAL TURNOUTS.

4 FT. 8½ INS. GAUGE.

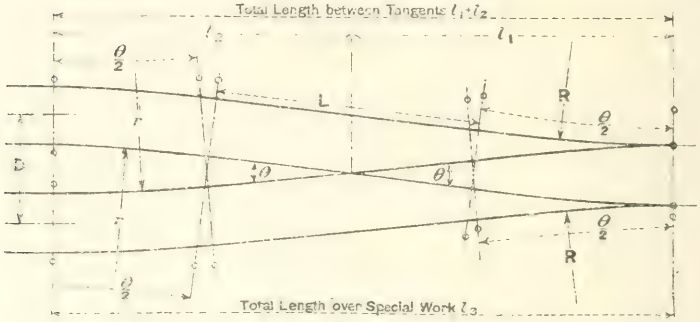


1	2	3	4	5	6	7	8	9	10
Radius of Switch.	Angle of Crossing.	Lead of Crossing.	Radius of Plain End.	Distance between Centres of Tracks.	Lead of Plain End.	Total Length over Special Work.	Variation of l_2 and l_3 for each inch in Width D.	Length of Straight through Crossing.	Variation of L for each inch in Width D.
R	θ	l_1	r	D	l_2	l_3		L	
ft.	1 in 6	ft.	ft.	ft. ins.	ft.	ft.	ins.	ft.	ins.
				9 0	46·3840	94·1339		11·9195	
250	9° 34′	49·2499	250	9 6	49·3507	97·1005	5·9333	14·9280	6·0170
				10 0	52·3173	100·0672		17·9365	
				8 0	40·4953	88·9868		13·2853	
	1 in 6½			8 6	43·7189	92·2104		16·5474	
250		49·9915	250	9 0	46·9425	95·4340	6·4472	19·8096	6·5243
	8° 49′			9 6	50·1661	98·6576		23·0717	
				10 0	53·3897	101·8812		26·3339	
				8 0	40·7630	90·1942		19·9117	
	1 in 7			8 6	44·2327	93·6639		23·4173	
250		50·9312	250	9 0	47·7025	97·1337	6·9395	26·9229	7·0112
	8° 12′			9 6	51·1722	100·6034		30·4285	
				10 0	54·6420	104·0732		33·9341	
				8 0	41·2214	91·8045		26·3517	
	1 in 7½			8 6	44·9439	95·5270		30·1077	
250		52·0831	250	9 0	48·6665	99·2496	7·4451	33·8636	7·5119
	7° 39′			9 6	52·3890	102·9721		37·6196	
				10 0	56·1116	106·6947		41·3755	
				8 0	41·8346	93·7305		32·5190	
	1 in 8			8 6	45·8111	97·7070		36·5268	
250		53·3959	250	9 0	49·7876	101·6835	7·9530	40·5346	8·0156
	7° 10′			9 6	53·7641	105·6600		44·5424	
				10 0	57·7406	109·6365		48·5502	
				9 0	50·7971	102·6432		12·1004	
	1 in 6½			9 6	54·0207	105·8668	6·4472	15·3625	6·5243
300		53·8461	300	10 0	57·2443	109·0904		18·6247	
	8° 49′								
				8 6	47·8168	100·3321		16·2491	
	1 in 7			9 0	51·2866	103·8019		19·7547	
300		54·5153	300	9 6	54·7563	107·2716	6·9395	23·2603	7·0112
	8° 12′			10 0	58·2261	110·7414		26·7659	
				8 0	44·5643	97·9903		19·6659	
	1 in 7½			8 6	48·2868	101·7128		23·4219	
300		55·4260	300	9 0	52·0094	105·4354	7·4451	27·1778	7·5119
	7° 39′			9 6	55·7319	109·1579		30·9338	
				10 0	59·4545	112·8805		34·6897	
				8 0	44·9657	99·4927		26·2568	
	1 in 8			8 6	48·9422	103·4692		30·2646	
300		56·5270	300	9 0	52·9187	107·4457	7·9530	34·2724	8·0156
	7° 10′			9 6	56·8952	111·4222		38·2802	
				10 0	60·8717	115·3987		42·2880	

TABLE 6.

BRITISH STANDARD EQUILATERAL TURNOUTS.

4 FT. 8½ INS. GAUGE.

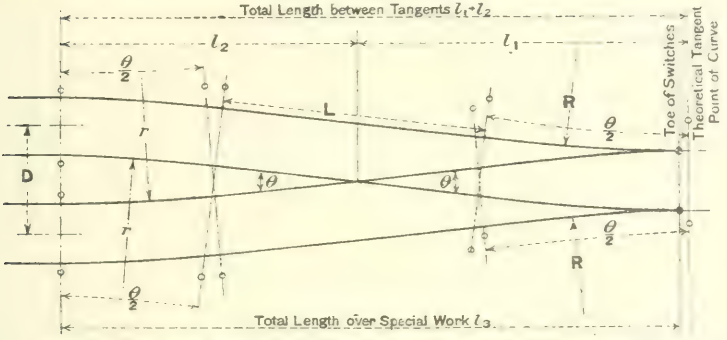


1	2	3	4	5	6	7	8	9	10
Radius of Switch.	Angle of Crossing.	Lead of Crossing.	Radius of Plain End.	Distance between Centres of Tracks.	Lead of Plain End.	Total Length over Special Work.	Variation of l_2 and l_3 for each inch in Width **D**.	Length of Straight through Crossing.	Variation of **L** for each inch in Width **D**.
R	θ	l_1	r	**D**	l_2	l_3		**L**	
ft.		ft.	ft.	ft. ins.	ft.	ft.	ins.	ft.	ins.
				8 0	26·3977	60·0771		19·6877	
	1 in 5			8 6	28·8841	62·5635		22·1866	
200	11° 29′	33·6794	200	9 0	31·3705	65·0499	4·9728	24·6855	4·9978
				9 6	33·8569	67·5363		27·1844	
				10 0	36·3433	70·0227		29·6833	
				8 0	27·1373	62·2480		25·5570	
	1 in 5½			8 6	29·8755	64·9862		28·3066	
200	10° 26′	35·1107	200	9 0	32·6137	67·7244	5·4764	31·0562	5·4992
				9 6	35·3519	70·4626		33·8058	
				10 0	38·0901	73·2008		36·5554	
				8 0	28·0212	64·7047		31·0653	
	1 in 6			8 6	31·0088	67·6923		34·0634	
200	9° 34′	36·6835	200	9 0	33·9964	70·6799	5·9752	37·0614	5·9961
				9 6	36·9840	73·6675		40·0595	
				10 0	39·9716	76·6551		43·0575	
				8 0	29·0462	67·4627		36·4634	
	1 in 6½			8 6	32·2891	70·7056		39·7159	
200	8° 49′	38·4165	200	9 0	35·5320	73·9485	6·4858	42·9684	6·5050
				9 6	38·7749	77·1914		46·2209	
				10 0	42·0178	80·4343		49·4734	
				8 0	30·1190	70·2892		41·4598	
	1 in 7			8 6	33·6067	73·7769		44·9564	
200	8° 12′	40·1702	200	9 0	37·0944	77·2646	6·9754	48·4530	6·9932
				9 6	40·5821	80·7523		51·9496	
				10 0	44·0698	84·2400		55·4462	
				8 0	31·2946	73·3420		46·4481	
	1 in 7½			8 6	35·0339	77·0813		50·1957	
200	7° 39′	42·0474	200	9 0	38·7732	80·8206	7·4786	53·9433	7·4952
				9 6	42·5125	84·5599		57·6909	
				10 0	46·2518	88·2992		61·4385	
				8 0	32·5373	76·5341		51·3404	
	1 in 8			8 6	36·5295	80·5263		55·3404	
200	7° 10′	43·9968	200	9 0	40·5217	84·5185	7·9844	59·3404	8·0000
				9 6	44·5139	88·5107		63·3404	
				10 0	48·5061	92·5029		67·3404	

TABLE 6
(continued).

BRITISH STANDARD EQUILATERAL TURNOUTS.

4 FT. 8½ INS. GAUGES.

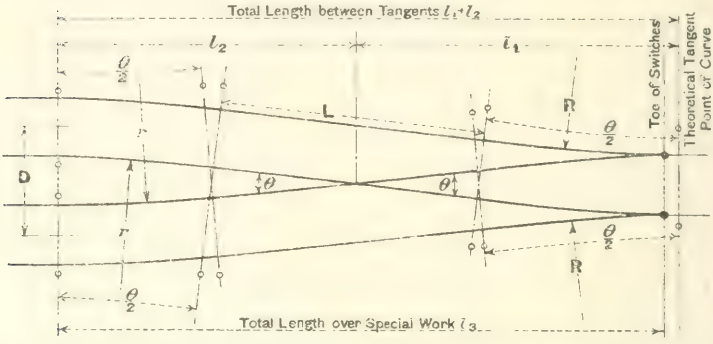


1	2	3	4	5	6	7	8	9	10
Radius of Switch.	Angle of Crossing.	Lead of Crossing.	Radius of Plain End.	Distance between Centres of Tracks.	Lead of Plain End.	Total Length over Special Work.	Variation of l_2 and l_3 for each inch in Width **D**.	Length of Straight through Crossing.	Variation of **L** for each inch in Width **D**.
R	θ	l_1	r	**D**	l_2	l_3		**L**	
ft.		ft.	ft.	ft. ins.	ft.	ft.	ins.	ft.	ins.
				8 0	30·1095	68·3814		26·8886	
	1 in 6			8 6	33·0971	71·3690		29·8867	
250		38·7719	250	9 0	36·0847	74·3566	5·9752	32·8847	5·9961
	9° 34′			9 6	39·0723	77·3442		35·8828	
				10 0	42·0599	80·3318		38·8808	
				8 0	30·9707	70·8116		32·6145	
	1 in 6½			8 6	34·2136	74·0545		35·8670	
250		40·3409	250	9 0	37·4565	77·2974	6·4858	39·1195	6·5050
	8° 49′			9 6	40·6994	80·5403		42·3720	
				10 0	43·9423	83·7832		45·6245	
				8 0	31·9087	73·3687		37·8803	
	1 in 7			8 6	35·3964	76·8564		41·3769	
250		41·9600	250	9 0	38·8841	80·3441	6·9754	44·8735	6·9932
	8° 12′			9 6	42·3718	83·8318		48·3701	
				10 0	45·8595	87·3195		51·8667	
				8 0	32·9642	76·1812		43·1090	
	1 in 7½			8 6	36·7035	79·9205		46·8566	
250		43·7170	250	9 0	40·4428	83·6598	7·4786	50·6042	7·4952
	7° 39′			9 6	44·1821	87·3991		54·3518	
				10 0	47·9214	91·1384		58·0994	
				8 0	34·1013	79·1621		48·2123	
	1 in 8			8 6	38·0935	83·1543		52·2123	
250		45·5608	250	9 0	42·0857	87·1465	7·9844	56·2123	8·0000
	7° 10′			9 6	46·0779	91·1387		60·2123	
				10 0	50·0701	95·1309		64·2123	

TABLE 6
(continued).

BRITISH STANDARD EQUILATERAL TURNOUTS.

4 FT. 8½ INS. GAUGE.

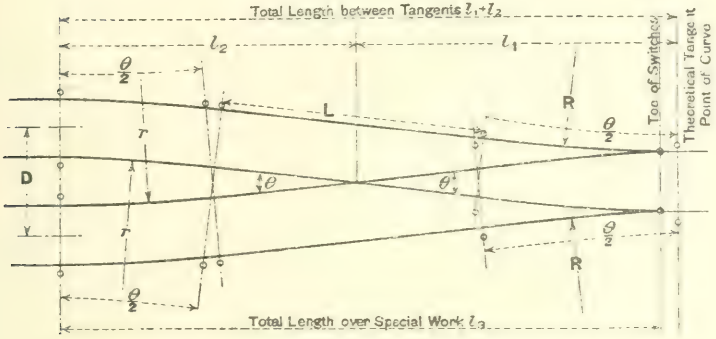


1	2	3	4	5	6	7	8	9	10
Radius of Switch.	Angle of Crossing.	Lead of Crossing.	Radius of Plain End.	Distance between Centres of Tracks.	Lead of Plain End.	Total Length over Special Work.	Variation of l_2 and l_3 for each inch in Width D.	Length of Straight through Crossing.	Variation of L for each inch in Width D.
R	θ	l_1	r	D	l_2	l_3		L	
ft.		ft.	ft.	ft. ins.	ft.	ft.	ins.	ft.	ins.
				8 0	32·1978	72·0580		22·7120	
	1 in 6			8 6	35·1854	75·0456		25·7101	
300	9° 34′	40·8602	300	9 0	38·1730	78·0332	5·9752	28·7081	5·9961
				9 6	41·1606	81·0208		31·7062	
				10 0	44·1482	84·0084		34·7042	
				8 0	32·8951	74·1605		28·7656	
	1 in 6½			8 6	36·1380	77·4034		32·0181	
300	8° 49′	42·2654	300	9 0	39·3809	80·6463	6·4858	35·2706	6·5050
				9 6	42·6238	83·8892		38·5231	
				10 0	45·8667	87·1321		41·7756	
				8 0	33·6985	76·4482		34·3008	
	1 in 7			8 6	37·1862	79·9359		37·7974	
300	8° 12′	43·7497	300	9 0	40·6739	83·4236	6·9754	41·2940	6·9932
				9 6	44·1616	86·9113		44·7906	
				10 0	47·6493	90·3990		48·2872	
				8 0	34·6338	79·0204		39·7698	
	1 in 7½			8 6	38·3731	82·7597		43·5174	
300	7° 39′	45·3866	300	9 0	42·1124	86·4990	7·4786	47·2650	7·4952
				9 6	45·8517	90·2383		51·0126	
				10 0	49·5910	93·9776		54·7602	
				8 0	35·6653	81·7901		45·0843	
	1 in 8			8 6	39·6575	85·7823		49·0843	
300	7° 10′	47·1248	300	9 0	43·6497	89·7745	7·9844	53·0843	8·0000
				9 6	47·6419	93·7667		57·0843	
				10 0	51·6341	97·7589		61·0843	

TABLE 6
(continued).

BRITISH STANDARD EQUILATERAL TURNOUTS.

4 FT. 8½ INS. GAUGE.

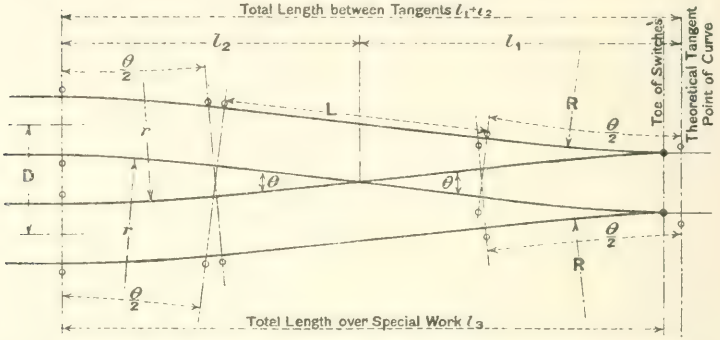


1	2	3	4	5	6	7	8	9	10
Radius of Switch.	Angle of Crossing.	Lead of Crossing.	Radius of Plain End.	Distance between Centres of Tracks.	Lead of Plain End.	Total Length over Special Work.	Variation of l_2 and l_3 for each inch in Width **D**.	Length of Straight through Crossing.	Variation of **L** for each inch in Width **D**.
R	θ	l_1	r	**D**	l_2	l_3		**L**	
ft.		ft.	ft.	ft. ins.	ft.	ft.	ins.	ft.	ins.
				8 0	34·2862	75·7347		18·5353	
				8 6	37·2738	78·7223		21·5334	
350	1 in 6 9° 34′	42·9485	350	9 0	40·2614	81·7099	5·9752	24·5314	5·9961
				9 6	43·2490	84·6975		27·5295	
				10 0	46·2366	87·6851		30·5275	
				8 0	34·8196	77·5094		24·9167	
				8 6	38·0625	80·7523		28·1692	
350	1 in 6½ 8° 49′	44·1898	350	9 0	41·3054	83·9952	6·4858	31·4217	6·5050
				9 6	44·5483	87·2381		34·6742	
				10 0	47·7912	90·4810		37·9267	
				8 0	35·4882	79·5276		30·7212	
				8 6	38·9759	83·0153		34·2178	
350	1 in 7 8° 12′	45·5394	350	9 0	42·4636	86·5030	6·9754	37·7144	6·9932
				9 6	45·9513	89·9907		41·2110	
				10 0	49·4390	93·4784		44·7076	
				8 0	36·3034	81·8596		36·4307	
				8 6	40·0427	85·5989		40·1783	
350	1 in 7½ 7° 39′	47·0562	350	9 0	43·7820	89·3382	7·4786	43·9259	7·4952
				9 6	47·5213	93·0775		47·6735	
				10 0	51·2606	96·8168		51·4211	
				8 0	37·2293	84·4181		41·9561	
				8 6	41·2215	88·4103		45·9561	
350	1 in 8 7° 10′	48·6888	350	9 0	45·2137	92·4025	7·9844	49·9561	8·0000
				9 6	49·2059	96·3947		53·9561	
				10 0	53·1981	100·3869		57·9561	

TABLE 6
(continued).

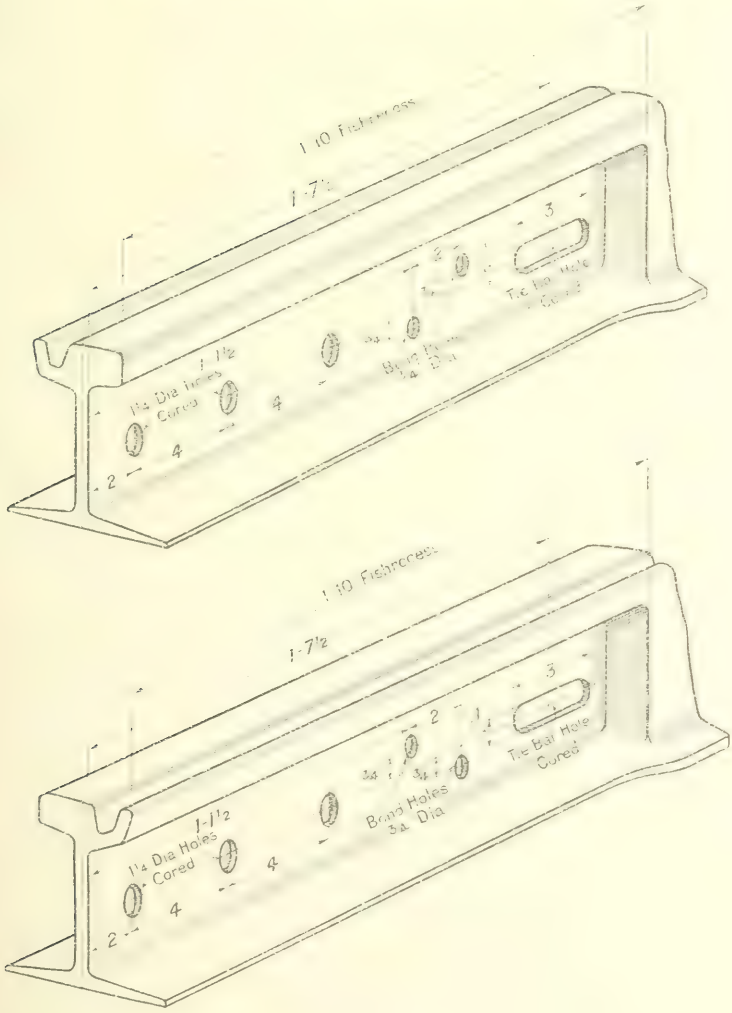
BRITISH STANDARD EQUILATERAL TURNOUTS.

4 FT. 8½ INS. GAUGE.



1	2	3	4	5	6	7	8	9	10
Radius of Switch.	Angle of Crossing.	Lead of Crossing.	Radius of Plain End.	Distance between Centres of Tracks.	Lead of Plain End.	Total Length over Special Work.	Variation of l_2 and l_3 for each inch in Width D.	Length of Straight through Crossing.	Variation of L for each inch in Width D.
R	θ	l_1	r	D	l_2	l_3		L	
ft.		ft.	ft.	ft. ins.	ft.	ft.	ins.	ft.	ins.
			350	8 0	34·2865	77·8234		16·4469	
				8 6	39·3625	82·8993		17·3567	
400	1 in 6 9° 34′	45·0368	400	9 0	42·3501	85·8869	5·9752	20·3548	5·9961
				9 6	45·3377	88·8745		23·3528	
				10 0	48·3253	91·8621		26·3509	
				8 0	36·7447	81·3590		21·0679	
				8 6	39·9876	84·6019		24·3204	
400	1 in 6½ 8° 49′	46·1143	400	9 0	43·2305	87·8448	6·4858	27·5729	6·5050
				9 6	46·4734	91·0877		30·8254	
				10 0	49·7163	94·3306		34·0779	
				8 0	37·2779	83·1070		27·1419	
				8 6	40·7656	86·5947		30·6385	
400	1 in 7 8° 12′	47·3291	400	9 0	44·2533	90·0824	6·9754	34·1351	6·9932
				9 6	47·7410	93·5701		37·6317	
				10 0	51·2287	97·0578		41·1283	
				8 0	37·9729	85·1987		33·0915	
				8 6	41·7122	88·9380		36·8391	
400	1 in 7½ 7° 39′	48·7258	400	9 0	45·4515	92·6773	7·4786	40·5867	7·4952
				9 6	49·1908	96·4166		44·3343	
				10 0	52·9301	100·1559		48·0819	
				8 0	38·7934	87·5462		38·8282	
				8 6	42·7856	91·5384		42·8282	
400	1 in 8 7° 10′	50·2528	400	9 0	46·7778	95·5306	7·9844	46·8282	8·0000
				9 6	50·7700	99·5228		50·8282	
				10 0	54·7622	103·5150		54·8282	

BRITISH STANDARD ARRANGEMENT OF HOLING IN SWITCHES AND CROSSINGS FOR BRITISH STANDARD RAILS 6½ AND 7 IN. DEEP.



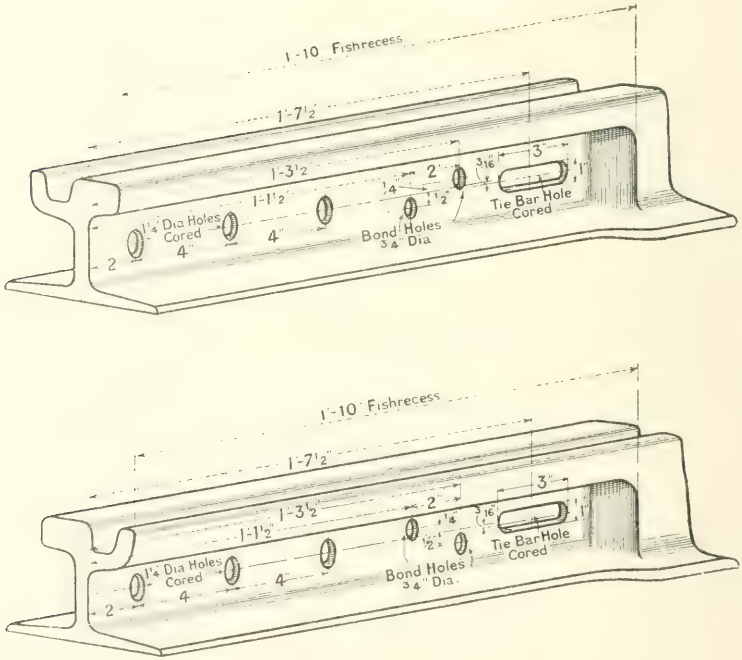
BRITISH STANDARD ARRANGEMENT OF HOLING

IN

SWITCHES AND CROSSINGS

FOR

BRITISH STANDARD RAILS $5\frac{1}{4}$ INS. DEEP.



British Engineering Standards Association.

PRICE LIST

OF

BRITISH STANDARD SPECIFICATIONS AND REPORTS.

NOVEMBER, 1919.

(This List cancels all previous Lists.)

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Westminster, S.W. 1.